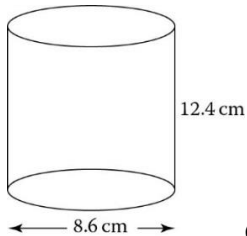


You may use a calculator for Q1 – Q8

- 1** The diagram shows a cylindrical can.
The height is 12.4 cm.
The diameter of the base is 8.6 cm.

Calculate the total surface area of the can.

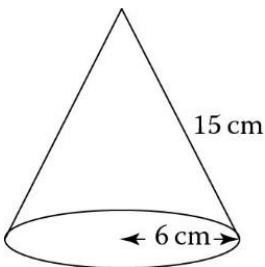
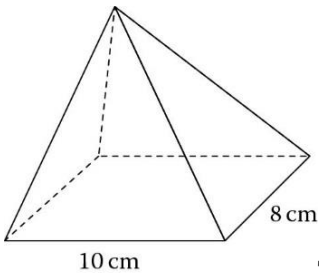


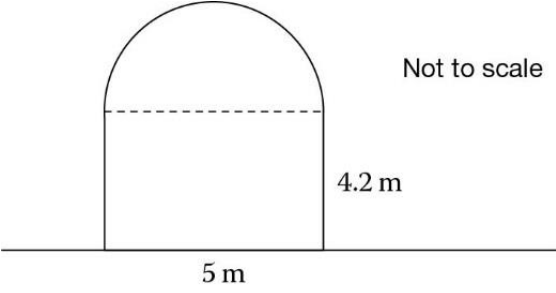
Give your answer to a suitable degree of accuracy.

[6 marks]

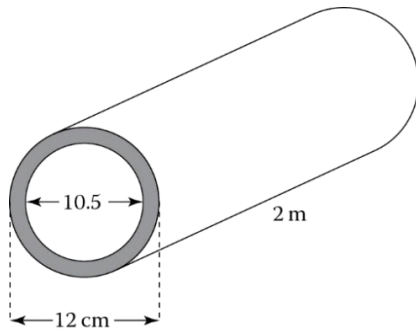
- 2** Surface area of a sphere = $4 \times \pi \times \text{radius}^2$
Calculate the surface area of a sphere of radius 12.5 cm.
Give your answer to a suitable degree of accuracy.
State the units of your answer.

[4 marks]

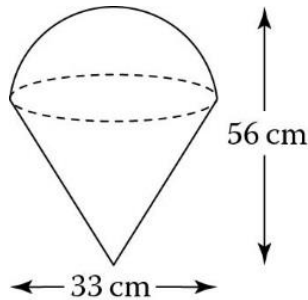
| | | |
|---|--|-----------|
| | | |
| 3 | <p>Curved surface area of a cone = $\pi \times \text{radius} \times \text{slant height}$</p> <p>Calculate the curved surface area of a cone with base radius 6 cm and slant height 15 cm.</p>  <p>The diagram shows a cone. The base is an ellipse with a horizontal double-headed arrow across its center labeled '6 cm'. A line segment from the top vertex to the right edge of the base is labeled '15 cm'.</p> | [3 marks] |
| 4 |  <p>The diagram shows a pyramid with a rectangular base. The front edge of the base is labeled '10 cm' and the right edge is labeled '8 cm'. Dashed lines represent the hidden edges of the base and the vertical height from the center of the base to the apex.</p> <p>The diagram shows a pyramid on a rectangular base measuring 8 cm by 10 cm.</p> <p>Volume of a pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$</p> <p>The volume of the pyramid is 320 cm^3.</p> <p>Calculate the height of the pyramid.</p> | [3 marks] |

| | | |
|---|--|-----------------------------------|
| | | |
| 5 | <p>The uniform cross-section of a barn is in the shape of a semi-circle on top of a rectangle.</p>  <p>Not to scale</p> <p>4.2 m</p> <p>5 m</p> <p>The rectangle is 5 metres wide and 4.2 metres high. The barn is 15 metres long. Calculate the volume of the barn.</p> | |
| 6 | <p>The diagram shows a concrete pipe with outer diameter 12 cm and inner diameter 10.5 cm.</p> | <p>[5 marks]</p> <p>[4 marks]</p> |

Calculate the volume of concrete used to make a 2-metre length of this pipe.



7



A model ice cream in an ice cream parlour is in the shape of a hemisphere on top of a cone.

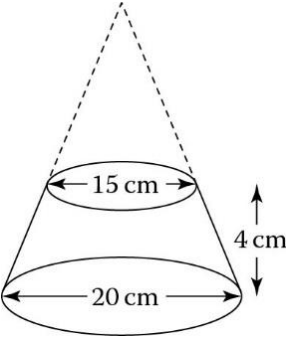
The diameter of the hemisphere is 33 cm and the overall height of the model is 56 cm.

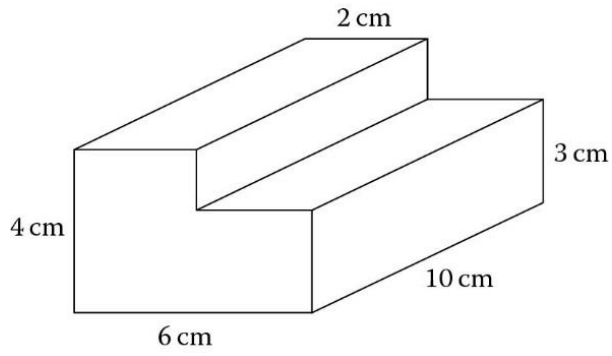
$$\text{Volume of a sphere} = \frac{4}{3} \times \pi \times \text{radius}^3$$

$$\text{Volume of a cone} = \frac{1}{3} \times \pi \times \text{radius}^2 \times \text{height}$$

Calculate the volume of plastic used to make this model.

[6 marks]

| | | |
|-------------------------------------|---|-----------|
| | | |
| 8 |  <p>The top of a cone is removed to leave a frustum.</p> <p>The diameter of the base of the frustum is 20 cm and the diameter of its top is 15 cm.</p> <p>The height of the frustum is 4 cm.</p> <p>Volume of a cone = $\frac{1}{3} \times \pi \times \text{radius}^2 \times \text{height}$</p> <p>Calculate the volume of the frustum.</p> | [5 marks] |
| You may NOT use a calculator for Q9 | | |
| 9 | <p>The diagram shows an L-shaped prism.</p> <p>All the angles in the cross-section are right angles.</p> | [4 marks] |



Calculate the total surface area of the prism.

Total for paper is 40 marks